



GENERALITAT
VALENCIANA



BANCO DE
PATENTES



PRINCIPE FELIPE
CENTRO DE INVESTIGACION

Self-assembling polypeptides derivatives as a platform for drug delivery and imaging

DESCRIPTION OF THE TECHNOLOGY

While there has been a considerable effort devoted to the development of new and more versatile polymeric architectures with specific and predictable properties to be used as targeted drug delivery and imaging systems, their potential for biological applications still remain to be fully exploited.

As general basis, star polymers have a more compact structure, presumably with globular shape, and have large surface areas, increased concentrations of functional end groups for polymers with equal molecular weight, and unique rheological properties which make them optimal platforms for

drug delivery and imaging among other biological applications.

The Polymer Therapeutics Lab at the CIPF has developed a family of star-shaped polypeptides derivatives which are able to self-assemble to form bioresponsive nanometric globular structures with controllable size and shape.

These multivalent constructs also present the ability of disassemble under specific physiological conditions and of linking to at least one active agent so that they can be used as carriers in multiple biomedical applications.

MARKET APPLICATION SECTORS

Main applications include: Multivalent system and versatile platform for drug delivery and imaging; Conjugation of multidrug cocktails, diagnostic probes and/or targeting moieties, in order to target to specific organs in the body or organelles in a cell; Validated in vivo as a carrier to cross the blood-brain barrier (BBB); Validated in vivo as a carrier in cancer and neurodegenerative diseases.

TECHNICAL ADVANTAGES AND BUSINESS BENEFITS

- Design of a polypeptidic carrier (polyglutamates) able to self-assemble into a controlled architecture
- Ability to control size and shape of the carrier
- Ability to detach and attach covalently to therapeutic and diagnostic agents
- Better cell capture and longer average plasma life
- Available data on cellular toxicity, cellular uptake, biodistribution and pharmacokinetics

CURRENT STATE OF DEVELOPMENT

Validated in vivo as a carrier to cross the blood-brain barrier (BBB); Validated in vivo as a carrier in cancer and neurodegenerative diseases.

INTELLECTUAL PROPERTY RIGHTS

EPO and PCT patent applications filed by CIPF (priority date: 7 August, 2015).



GENERALITAT
VALENCIANA



BANCO DE
PATENTES



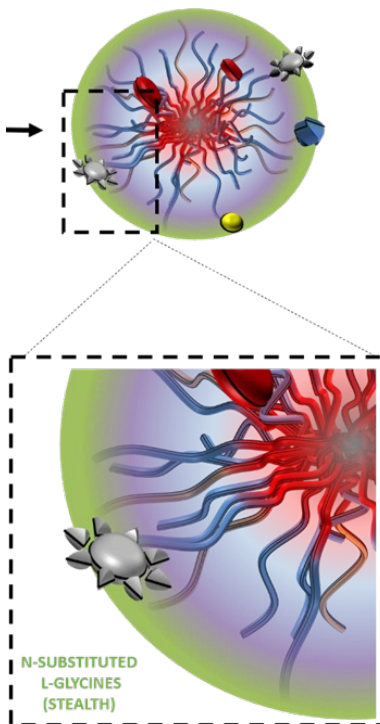
PRINCIPE FELIPE
CENTRO DE INVESTIGACION

Self-assembling polypeptides derivatives as a platform for drug delivery and imaging

COLABORATION SOUGHT

Licensing or co-development with health and pharmaceutical companies as well as research organizations interested in the application of this technology in drug delivery or imaging.

RELATED IMAGES



MULTIFUNCTIONAL CARRIER

STEALTH/ANTIFOULING MOTIFS




-  TARGETING MOIETIES
-  IMAGING AGENTS
-  DRUGS

Fig.1 Multifunctional carrier

CONTACT

Office of Sponsored Research and Technology Transfer



GENERALITAT
VALENCIANA



BANCO DE
PATENTES



PRINCIPE FELIPE
CENTRO DE INVESTIGACION

Self-assembling polypeptides derivatives as a platform for drug delivery and imaging
otri@cipf.es

Principe Felipe Research Center
Eduardo Primo Yufera, 3
46012 - Valencia